What is claimed is :

1. A modified human granulocyte-colony stimulating factor(hG-CSF) which is characterized in that at least one of the 1st, 2nd, 3rd and 17th amino acids of wild-type hG-CSF(SEQ ID NO: 2) is replaced by other amino acid(s).

2. The modified hG-CSF of claim 1 whose amino acid sequence is the same as that of wild-type hG-CSF, except that

(a) the 1st amino acid is Ser;

(b) the 1st amino acid is Ser and the 17th amino acid is X;

(c) the 2nd amino acid is Met and the 3rd amino acid is Val;

(d) the 2nd amino acid is Met, the 3rd amino acid is Val and the 17th amino acid is X; or

(f) the 17th amino acid is X,

wherein X is an amino acid which is not charged at neutral pH.

3. The modified hG-CSF of claim 2, wherein X is Ser, Thr, Ala or Gly.

4. The modified hG-CSF of claim 3, wherein X is Ser.

5. A DNA encoding the modified hG-CSF of any one of claims 1 to 4.

6. The DNA of claim 5, wherein the 1st to the 60th nucleotide sequence of the modified hG-CSF DNA corresponds to one selected from the group consisting of SEQ ID NOS: 55, 57, 59, 61, 63, 65, 67 and 69.

7. An expression vector comprising the DNA of claim 5.

8. The expression vector of claim 7, which further comprises a polynucleotide encoding a signal peptide attached at the 5'-end of the DNA encoding the modified hG-CSF.

9. The expression vector of claim 8, wherein the signal peptide is

E. coli thermoresistant enterotoxin II signal peptide or modified *E. coli* thermoresistant enterotoxin II signal peptide.

10. The expression vector of claim 9, wherein the *E. coli* thermoresistant enterotoxin II signal peptide has the amino acid sequence of SEQ ID NO: 53.

11. The expression vector of claim 9, wherein the modified *E. coli* thermoresistant enterotoxin II signal peptide has the amino acid sequence of SEQ ID NO: 54.

12. The expression vector of claim 9, which further comprises a modified *E. coli* enterotoxin II Shine-Dalgano sequence having the nucleotide sequence of SEQ ID NO: 71.

13. The expression vector of claim 8, wherein the signal peptide is *E. coli* beta lactamase signal peptide or modified *E. coli* beta lactamase signal peptide.

14. The expression vector of claim 13, wherein the *E. coli* beta lactamase signal peptide has the amino acid sequence of SEQ ID NO: 24.

15. The expression vector of claim 8, wherein the signal peptide is *E. coli* Gene III signal peptide or modified *E. coli* Gene III signal peptide.

16. The expression vector of claim 15, wherein the *E. coli* Gene III signal peptide has the amino acid sequence of SEQ ID NO: 42.

17. The expression vector of claim 7 or 8, which is pT14SS1SG, pT14SS1S17SEG, pTO1SG, pTO1S17SG, pTO17SG or pBAD2M3V17SG.

18. A microorganism transformed with the expression vector according to claim 7 or 8.

19. The microorganism of claim 18, which is a transformed *E. coli*.

20. The microorganism of claim 19, wherein the transformed *E. coli* is *E. coli* BL21(DE3)/pT14SS1SG(HM 10310), *E. coli* BL21(DE3)/pT14SS1S17SEG(HM 10311, KCCM-10154), *E. coli* BL21(DE3)/pTO1SG(HM 10409), *E. coli* BL21(DE3)/pTO1S17SG(HM 10410, KCCM-10151), *E. coli* BL21(DE3)/pTO17SG(HM 10411, KCCM-10152), *E. coli* BL21(DE3)/pTO17TG(HM 10413), *E. coli* BL21(DE3)/pTO17AG(HM 10414), *E. coli* BL21(DE3)/pTO17GG(HM 10415), *E. coli* BL21(DE3)/pBAD2M3VG(HM 10510, KCCM-10153), *E. coli* BL21(DE3)/pBAD17SG(HM 10511) or *E. coli* BL21(DE3)/pBAD2M3V17SG(HM 10512).

21. A process for producing a modified hG-CSF in microorganism which comprises culturing the transformed microorganism of claim 18 to produce and secrete the modified hG-CSF to periplasm.